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Exogenous Bacillus pumilus RNase (binase) suppresses the reproduction of reovirus serotype 1

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Abstract

© 2017, Pleiades Publishing, Inc.The experimental study identified the antiviral activity of Bacillus pumilus RNase (binase) against the reovirus of serotype 1/strain Lang. For the first time, it has been found that 50 μg/mL of binase effectively reduced the hemagglutinin and cytocidal activity of reovirus in Vero cell line. The preincubation of the enzyme with reovirus before infection of the cells inhibited the viral replication. To determine the stagedependent effect of reovirus reproduction upon binase inhibition, the infected cells were treated with binase or RNase A at different phases of the infectious cycle. The treatment of virus-infected cells has revealed that both enzymes have a maximal antiviral effect on the reovirus propagation during early phases of the reovirus reproduction cycle, with binase being more effective than RNase A. It has been hypothesized that the combined action of the oncolytic reovirus and binase is promising for the elimination of tumor cells carrying mutated RAS gene.

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Keywords

antiviral agent, Bacillus pumilus RNase, binase, reovirus

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